

## APPENDIX

Pseudo code for optimizing color separation using a cache is as follows:

- Identify color components of output document and characterization of output composite color space.
- Generate empty pre-separated PDF document. The association between pages comprising a single composite page is described in a SeparationInfo dictionary.
- For each graphical element on the page:
  - If it is a formXObject do the following:
    - search cache for previously separated representation if one exists simply create a reference to the cached representation in each of the plates.
    - If not cached
    - Separate form XObject (step 336: may be recursive...using the outer algorithm here)
    - Reconstruct grayscale form XObject per plate
    - Submit reconstructed objects to cache
    - Create a referenced to the reconstructed object.
    - Goto next element
  - Otherwise, Find its color data and description of the associated color space
  - If it is a type 1 pattern color space do the following (same as 234 to 240)
    - search cache for previously separated representation if one exists

simply create a associate the object with cached representation in each of the plates.

- If not cached

- Separate pattern

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- Reconstruct grayscale pattern per plate

- Submit reconstructed patterns to cache

- Associate reconstructed pattern with the object for each of the

plates

- Goto next element

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- Otherwise, Convert color values to target device space or leave as custom color

- For colorant whose value is not 0, add a grayscale version of the item to the associated plate.

- Examine overprint settings and determine which if any plates will be drawn with an additional knockout element.

15

- Convert individual grayscale object streams into page contents and write pages.

Pseudo code for performing color separation using a cache is as follows:

- Identify color components of output document and characterization of output composite color space

5       • Generate pre-separated PDF document. The association between plates comprising a single composite page is described in a separation info dictionary.

- For each graphical element on the page do the following:

- find its color data and description of the associated color space

- convert color values to target device space or leave as custom color

10       • examine overprint settings and determine which if any plates will be drawn with an additional knockout element.

- if it is a composite object (pattern, form, annotation) search cache for previously separated representation

15       • if not cached, generate color and knockout elements with associate gray tint values to be placed in appropriate plates.

- cache composite representations of composite elements as necessary.

- Convert individual grayscale object streams into page contents and write pages.